

ECON5610
Topics in Microeconomics
Cheap-talk: Theory and Experiment
Time: 9:00am-12:50pm Monday
Location: 6045 LSK

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1 Course Objective

The course covers game-theoretic works on communication. We will maintain a healthy balance between classic / core papers and more recent papers, and between theory papers and experimental papers. Some of topics covered will be sender-receiver games, mediated communication, psychological aspects of communication, and game theory at the intersection of economics and linguistics. The goal is to stimulate original (theoretical and/or experimental) research in one of these areas.

2 Grading

If you are enrolled for credit, you will be asked to present a number of papers from the reading list, prepare and present a research proposal and write a short paper. If you audit the class, you will be involved in presenting papers like everyone else but will not have to prepare a research proposal or have to write a paper.

We divide the ★ (key theory), ♡ (key experimental), and ♠ (recent theory) papers in equal proportion among all participants. Everyone presents at least one ★ paper, one ♡ paper, and one ♠ paper. The ★ paper and the ♡ paper should be chosen from different topics. When you are responsible for a ★ paper, you will be responsible for all ★ papers that belong to the same topic. When you are responsible for a ♡ paper, you will be responsible for all ♡ papers that belong to the same topic.

The research proposal should have a minimum length of three pages and is due at the beginning of our **7th** meeting. A first draft of your paper (in case of theory ideas) or extended proposal (for experimental ideas) is due at the beginning of the last class (November 26) and you should be prepared to give a short presentation (20-30 mins) of what you have found. The final version of your paper (for theory ideas) or proposal (for experimental ideas) is due at the last day of Fall term (December 20).

Guidelines for theory paper: I expect the paper to have a minimum length of eight pages (not including title page and references), to contain a result stated in the form of a proposition and a proof of that proposition. The paper should be written in \LaTeX ; have a title page; a 150 word abstract that clearly explains the question asked and the key result; an introduction that elaborates on the abstract; a section that sets up, motivates and explains the model; a result section that states and proves the key results; and a concluding section that states

concisely what the punchline of the paper is.

Guidelines for experimental paper: I expect the paper to have a minimum length of nine pages (not including title page and references), to contain a main question stated in the form of a testable hypothesis. The paper should be written in L^AT_EX; have a title page; a 150 word abstract that clearly explains the question asked and the key expected result; an introduction that elaborates on the abstract; a section that sets up, motivates research questions and explains theoretical background; experimental hypothesis and procedure section that states the testable hypotheses and experimental design clearly; a small section that present some expected results and some methods to analyze the data; and a concluding section that states concisely what the punchline of the paper is.

Research Funding Support: After grading the original research proposals submitted, I am going to select one or two projects to provide a small grant (HKD 30,000) for each selected project. The funding will be used (restrictively) to support the experimental subject payment.

3 Reading List

3.1 Methodology - Experiments

1. Alvin Roth [1986], “Laboratory Experimentation in Economics,” *Economics and Psychology*, 2, 245–273.
2. Armin Falk and Heckman, J. James [2009], “Lab Experiments Are a Major Source of Knowledge in the Social Sciences,” *Science*, 326, 535–538.
3. Colin F. Camerer et al. [2016], “Evaluating replicability of laboratory experiments in economics,” *Science*.
4. David Levine [2009], “The Relationship of Economic Theory to Experiments.”
5. Ariel Rubinstein [2006], “Dilemmas of An Economic Theorist,” Presidential Address, *Econometrica*, 74, 865–883.

3.2 Cheap-talk: Fundamentals

1. David Lewis [1969], *Convention: A Philosophical Study*, Harvard University Press.
2. ★ Vince Crawford and Joel Sobel [1982], “Strategic information transmission,” *Econometrica*, 50, 1431–1451.
3. ♡ Andreas Blume, Douglas V. DeJong Yong-Gwan Kim and Geoffrey B. Sprinkle [1998], “Experimental Evidence on the Evolution of Meaning of Messages in Sender-Receiver Games,” *American Economic Review*, 88, 1323–1340.

4. Hongbin Cai and Joseph Tao-Yi Wang [2006], “Overcommunication in Strategic Information Transmission Games,” *Games and Economic Behavior*, 56, 7–36.
5. ♡ Uri Gneezy [2005], “Deception: The role of consequences,” *American Economic Review*, 95, 384–394.

3.3 Equilibrium Selection

1. ★ Joseph Farrell [1993], “Meaning and Credibility in Cheap-Talk Games,” *Games and Economic Behavior*, 5, 514–531.
2. ★ Chen, Ying, Navin Kartik, Joel Sobel [2008], “Selecting Cheap-Talk Equilibria.” *Econometrica*, 76: 117–136.
3. ♡ Ernest Lai and Wooyoung Lim [2016], “Meaning, its Evolution, and Credibility in Experimental Cheap-Talk Games,” *Quantitative Economics*, forthcoming.
4. De Groot Ruiz, Adrian, Theo Offerman, and Sander Onderstal [2015], “Equilibrium Selection in Experimental Cheap Talk Games.” *Games and Economic Behavior*, 91: 14-25.
5. Kawagoe, Toshiji, and Hirokazu Takizawa, [2008], “Equilibrium Refinement vs. Level-k Analysis: An Experimental Study of Cheap-Talk Games with Private Information.” *Games and Economics Behavior*, 66: 238-255.

3.4 Mediation and Other Communication Channels

1. ★ Blume, Andreas, Oliver J. Board, and Kohei Kawamura. [2007], “Noisy Talk.” *Theoretical Economics*, 2: 395–440.
2. ★ Goltsman, Maria, Johannes Hörner, Gregory Pavlov, and Francesco Squintani [2009], “Mediation, Arbitration and Negotiation.” *Journal of Economic Theory*, 144: 1397–1420.
3. Robert J. Aumann and Sergiu Hart [2003], “Long Cheap Talk,” *Econometrica*, 71, 1619–1660.
4. Krishna, Vijay and John Morgan [2004], “The Art of Conversation: Eliciting Information from Experts through Multi-Stage Communication.” *Journal of Economic Theory*, 117: 147–179.
5. Ivanov, Maxim [2010] “Communication via a Strategic Mediator.” *Journal of Economic Theory*, 145: 869-884.

6. ♡ Blume, Andreas, Ernest K. Lai, and Wooyoung Lim [2018], “Eliciting Private Information with Noise: The Case of Randomized Response,” *Games and Economic Behavior*, forthcoming.
7. ♠ Sidartha Gordon and Georg Nöldeke [2015], “Figures of Speech in Strategic Communication.”
8. ♠ Alonso, Ricardo and Rantakari, Heikki [2014] “The art of brevity”.

3.5 Multi-sender, Multi-receiver, Multi-dimensional Cheap-talk

1. ★ Battaglini, Marco [2002] “Multiple Referrals and Multidimensional Cheap Talk.” *Econometrica*, 50, 1431–1451.
2. Attila Ambrus and Satoru Takahashi [2008] “Multi-Sender Cheap Talk with Restricted State Space,” *Theoretical Economics*, 3, 1–27.
3. ♡ Lai, Ernest K., Wooyoung Lim, and Joseph Tao-Yi Wang [2015] “An experimental analysis of multidimensional cheap talk.” *Games and Economic Behavior*, 91, 114–144.
4. ♡ Vespa, Emmanuel, and Alistair. J. Wilson [2016] “Communication with multiple senders: an experiment.” *Quantitative Economics*, 7, 1–36.
5. Battaglini, Marco., and U. Makarov [2011] “Cheap Talk with Multiple Audiences: An Experimental Analysis.” *Games and Economic Behavior*, 83, 147–164.
6. Farrell, J., and R. Gibbons [1989] “Cheap Talk with Two Audiences.” *American Economic Review*, 79, 1214–1223.
7. Gilligan, T.W., Krehbiel, K. [1989] “Asymmetric information and legislative rules with a heterogeneous committee,” *American Political Science Review*, 33, 459–490.
8. ★ Krishna, V., Morgan, J. [2001] “Asymmetric information and legislative rules,” *American Journal of Political Science*, 95, 435–452.
9. ♡ Battaglini, Marco, Ernest K. Lai, Wooyoung Lim, and Joseph Tao-Yi Wang [2018] “The Informational Theory of Legislative Committees: An Experimental Analysis,” *American Political Science Review*, forthcoming
10. Minozzi, W., and Jonathan Woon [2016] “Competition, preference uncertainty, and jamming: A strategic communication experiment.” *Games and Economic Behavior*, 96, 9–114.
11. Chen, Ying and Sidartha Gordon [2015] “Information transmission in nested sender-receiver games,” *Economic Theory*, 58, 543–569.

3.6 Disclosure

1. Milgrom, Paul [1981] “Good news and bad news: Representation theorems and applications.” *Bell Journal of Economics*, 12, 380-391.
2. Milgrom, Paul, and John Roberts [1986] “Relying on the information of interested parties.” *RAND Journal of Economics*, 17, 18-32.
3. Milgrom, Paul. [2008] “What the seller won’t tell you: Persuasion and disclosure in markets.” *Journal of Economic Perspectives*, 22, 115-131.
4. Jin. G. Z., M. Luca, and D. Martin [2015] “Is No News (Perceived as) Bad News? An Experimental Investigation of Information Disclosure,” Harvard Business School Working Paper, No. 15-078
5. Hagenbach, J., F. Koessler, and E. Perez-Richet [2014] “Certifiable Pre-Play Communication: Full Disclosure”, *Econometrica*, 82, 1093–1131.
6. Hagenbach, J., E. Perez-Richet [2016] “Communication with Evidence in the Lab”, working paper.
7. Hart, Sergiu, Ilan Kremer, and Motty Perry [2016] “Evidence Games: Truth and Commitment,” *American Economic Review*.

3.7 Persuasion Mechanism

1. ★ Jacob Glazer and Ariel Rubinstein [2004] “On Optimal Rules of Persuasion,” *Econometrica*, 72, 1715–1736.
2. ★ Kamenica, Emir, and Matthew Gentzkow [2011], “Bayesian Persuasion,” *American Economic Review* 101, 2590–2615.
3. ♠ Archishman Chakraborty and Rick Harbaugh [2010], “Persuasion by Cheap Talk,” *American Economic Review*, 100, 2361–82.
4. ♠ Alonso, Ricardo and Odilon Camara [2016], “Bayesian Persuasion with Heterogeneous Priors” *Journal of Economic Theory*
5. ♠ Alonso, Ricardo and Odilon Camara [2014], “On the Value of Persuasion by Experts”.
6. Wang, Yun [2017], “Bayesian Persuasion with Multiple Receivers”.
7. Gentzkow, Matthew and Emir Kamenica [2017], “Bayesian persuasion with multiple senders and rich signal spaces.” *Games and Economic Behavior*
8. Fei Li and Peter Norman [2015] “On Bayesian Persuasion with Multiple Senders”, working paper

9. Guillaume Fréchette, Alessandro Lizzeri, and Jacopo Perego [2017] “Rules and Commitment in Communication”, working paper

3.8 Emergence of Meaning and Grammar

1. ★ Ariel Rubinstein [1996], “Why are certain properties of binary relations relatively more common in natural language?” *Econometrica*, 64, 343–355.
2. Blume, Andreas [2000], “Coordination and Learning with a Partial Language,” *Journal of Economic Theory*, 95, 1–36.
3. Blume, Andreas [2005], “A Learning-Efficiency Explanation of Structure in Language.” *Theory and Decision*, 57: 265–285.
4. ♡ Andreas Blume, Douglas V. DeJong Yong-Gwan Kim and Geoffrey B. Sprinkle [1998], “Experimental Evidence on the Evolution of Meaning of Messages in Sender-Receiver Games,” *American Economic Review*, 88, 1323–1340.
5. Bruner, J., C. O’Connor, H. Rubin, and S. M. Huttegger [2014], “David Lewis in the Lab: experimental results on the emergence of meaning,” *Synthese*, doi:10.1007/s11229-014-0535-x.
6. ♡ Weber, Roberto, and Colin Camerer [2003], “Cultural Conflict and Merger Failure: An experimental approach.” *Management Science*, 49: 400–415.
7. ♡ Selten, Reinhard, and Massimo Warglien [2007], “The emergence of simple languages in an experimental coordination game,” *Proceedings of the National Academy of Sciences of the United States of America*, 104, 7361–7366.
8. Fuhai Hong, Wooyoung Lim, and Xiaojian Zhao [2017], “The Emergence of Compositional Grammars in Artificial Codes.” *Games and Economic Behavior*.102: 255-268.

3.9 Contracting, Delegation and Commitment

1. ★ Ricardo Alonso, Niko Matouschek [2008], “Optimal delegation” *Review of Economic Studies*, 75, 259–293.
2. ★ Wouter Dessein [2002], “Authority and Communication in Organizations,” *Review of Economic Studies*, 69, 811–838.
3. ♡ Lai, Ernest and Wooyoung Lim [2012] “Authority and Communication in the Laboratory,” *Games and Economic Behavior*, 74 (2012), 541–560.
4. ♡ Dominguez-Martinez, Silvia and Sloof, Randolph [2016] “Communication Versus (Restricted) Delegation: An Experimental Comparison.” Tinbergen Institute Discussion Paper 16-050/VII. Available at SSRN:<http://ssrn.com/abstract=2804929>

5. N. Melumad and T. Shibano [1991], “Communication in Settings with no Transfers,” *Rand Journal of Economics*, 22, 173–198.
6. Krishna, Vijay, and John Morgan [2008], “Contracting for Information under Imperfect Commitment” *The RAND Journal of Economics*, 39, 905–925.
7. Lim, Wooyoung [2014] “Communication in Bargaining over Decision Rights,” *Games and Economic Behavior*, 85 , 159–179.

3.10 Psychology of Communication and Bounded Rationality

1. ♠ Sobel, Joel [2016], “Lying and Deception in Games,” mimeo.
2. ★ Vincent P. Crawford [2003], “Lying for Strategic Advantage: Rational and Boundedly Rational Misrepresentation of Intentions,” *American Economic Review*, 93, 133-149.
3. Botond Koszegi [2006], “Emotional Agency,” *Quarterly Journal of Economics*, 121, 121–155.
4. ♡ Blume, Andreas, Ernest K. Lai, and Wooyoung Lim [2018], “Eliciting Private Information with Noise: The Case of Randomized Response,” *Games and Economic Behavior*, forthcoming.
5. ♡ Wang, Joseph Tao-yi, Michael Spezio, and Colin F. Camerer [2010], “Pinocchio’s Pupil: Using Eyetracking and Pupil Dilation to Understand Truth Telling and Deception in Sender-Receiver Games,” *American Economic Review*, 100, 984–1007.

3.11 Higher-Order Uncertainty about Language, Vagueness and Ambiguity

1. ★ Ariel Rubinstein [1989], “The Electronic Mail Game: Strategic Behavior under Almost Common Knowledge,” *American Economic Review* 79, 385–391.
2. ★ Andreas Blume and Oliver Board [2013], “Language Barriers,” *Econometrica*, 81, 781–812.
3. ♠ Francesco Giovannoni and Siyang Xiong [2016], “Communication Under Language Barriers.” University of Bristol Working Paper.
4. ♠ Pei, Di [2015], “Uncertainty about Uncertainty in Communication,” MIT working paper.
5. ♠ Andreas Blume and Oliver Board [2013], “Common Knowledge of Language and Communication Success,” University of Arizona Working Paper.
6. Wooyoung Lim and Qinggong Wu [2017], “Vague Language and Context-Dependence.” working paper.

7. Christian Kellner and Mark T. Le Quement [2018], “Endogenous Ambiguity in Cheap Talk.” *Journal of Economic Theory*, 173, 1–17.

3.12 Over-communication

1. Hongbin Cai and Joseph Tao-Yi Wang [2006], “Overcommunication in Strategic Information Transmission Games,” *Games and Economic Behavior*, 56, 7–36.
2. ♡ Uri Gneezy [2005], “Deception: The role of consequences,” *American Economic Review*, 95, 384–394.
3. Hurkens, Sjaak, and Navin Kartik [2007], “Would I lie to you? On social preferences and lying aversion,” *Experimental Economics*, 12, 180–192.
4. ♠ Gibson, Rajna, Carmen Tanner, and Alexander Wagner [2013], “Preferences for Truthfulness: Heterogeneity among and within Individuals,” *American Economic Review*, 103: 532–548.
5. Fischbacher, Urs, and Franziska Föllmi-Heusi [2013], “Lies in Disguise—An Experimental Study on Cheating,” *Journal of European Economic Association*, 11, 525–547.
6. Abeler, Johannes, Daniele Nosenzo, and Collin Raymond [2018], “Preferences for truth-telling”, *Econometrica*
7. Gneezy, Uri, Agne Kajackaite, and Joel Sobel [2016], “Lying Aversion and the Size of the Lie,” *American Economic Review*
8. ♡ Wang, Joseph Tao-yi, Michael Spezio, and Colin F. Camerer [2010], “Pinocchio’s Pupil: Using Eyetracking and Pupil Dilation to Understand Truth Telling and Deception in Sender-Receiver Games,” *American Economic Review*, 100, 984–1007.

3.13 Cheap-talk in Network

1. Hagenbach, Jeanne, and Frédéric Koessler [2010], “Strategic Communication Networks,” *Review of Economic Studies* 77, 1072–1099.
2. Galeotti, Andrea, Christian Ghiglino and Francesco Squintani [2013], “Strategic Information Transmission Networks,” *Journal of Economic Theory*, 148, 1751–1769.

3.14 Information Acquisition in Cheap Talk

1. TW Gilligan, K Krehbiel [1987], “Collective decisionmaking and standing committees: An informational rationale for restrictive amendment procedures,” *Journal of Law, Economics, & Organization* 3 (2), 287–335.

2. Rossella Argenziano, Sergei Severinov, Francesco Squintani [2016], “Strategic Information Acquisition and Transmission,” *A EJ-Micro* 8, 119–155.
3. Henry Di Pei [2015], “Communication with endogenous information acquisition” *Journal of Economic Theory* 160, 132–149.

3.15 Repeated Cheap-talk

1. Aumann, Robert, and Sergiu Hart [2003], “Long Cheap Talk,” *Econometrica* 71, 1619–1660.
2. Sobel, Joel [1985], “A theory of credibility,” *Review of Economic Studies*, 52, 557–573.
3. Renault, J., E. Solan, and N. Vieille [2013], “Dynamic sender-receiver games,” *Journal of Economic Theory*, 148, 502–534.
4. Golosov, M., V. Skreta, A. Tsyviski, and A. Wilson [2014], “Dynamic strategic information transmission,” *Journal of Economic Theory*, 151, 304–341.
5. Ettinger, D. and P. Jehiel [2015], “An Experiment on Deception, Credibility and Trust,” *working paper*
6. Yi Chen, Maria Goltsman, Johannes Hörner, Gregory Pavlov [2017], “Straight Talk,” *working paper*
7. Vespa, Emanuel and Alistair J. Wilson [2016], “Information Transmission Under The Shadow of The Future: An Experiment,” *working paper*.

3.16 Cheap-talk: Surveys

1. Sobel, Joel [2013], “Giving and Receiving Advice,” *Advances in Economics and Econometrics*. Ed. Daron Acemoglu, Manuel Arellano, and Eddie Dekel. 1st ed. Vol. 1. Cambridge: Cambridge University Press, 305–341.
2. Crawford, Vincent [1998], “A Survey of Experiments on Communication via Cheap Talk,” *Journal of Economic Theory*, 78, 286–298.
3. Sobel, Joel [2013], “Ten possible experiments on communication and deception,” *Journal of Economic Behavior & Organization*, 93, 408–413.
4. Blume, Andreas, Wooyoung Lim, and Ernest K. Lai [2017], “Strategic Information Transmission: A Survey of Experiments and Theoretical Foundations.” *working paper*.